

CLAIMS

1. A drier installation (1) for drying web (2), more particularly paper, said
5 installation being provided for drying a maximum web width, said
installation (1) comprises gas-heated radiant elements (3) for
radiating said web, arranged according to at least one row (4)
stretching out in the transversal (5) direction over the substantially
entire maximum web width, said installation (1) comprising at least a
10 transversal convective system (7, 36) equipped with suction and
blowing devices (8) for sucking at least part of the combustion
products produced by said radiant elements (3) by means of a
suction duct (13) and for blowing said part of the combustion
products towards said web (2) by means of a blowing duct (14), said
15 suction (13) and blowing (14) ducts stretching out in the transversal
(5) direction of said web (2), said convective system (7, 36)
comprising at least a mixing device (12, 22, 28, 37, 46) installed
opposite of the passing web (2) in relation to corresponding suction
(13) and blowing (14) ducts and arranged so as to suck and/or blow
20 said combustion products **characterized in that** the vector average
of the projections (V1, V2, V3, V5, V6, V7, V8) in a plane (P1)
perpendicular to said web (2) and stretching out in the transversal (5)
direction of said web (2), has a component (V4) parallel to the web
(2) that is smaller than said maximum web width of said web (2),
25 said vectors representing the respective trajectories of the different
jets of sucked and/or blown combustion products.

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2. Drier installation according to claim 1, said component (V4) parallel to the web (2) that is smaller than approximately half of said maximum web width of the web (2),
- 5 3. Drier installation according to any one of the claims 1 to 2, wherein each mixing device (12, 22, 28, 37, 46) is arranged in such a way that the vector average (V5, V8) of the projections in a plane (P1), perpendicular to the web (2) and stretching out in the transversal (5) direction of said web (2), of the vectors representing the respective
10 trajectories of the different jets of sucked and/or blown combustion products by each of said mixing devices, is substantially perpendicular to said web (2) or substantially null.
4. Drier installation according to any one of the claims 1 to 3, wherein
15 each mixing device (12, 22, 28, 37, 46) and the corresponding blowing ducts (14) are arranged so that the vectors representing the respective trajectories of the different jets of combustion products blown on said web (2) have, in projection to a plane (P2), perpendicular to the web (2) and stretching out according to the
20 median longitudinal axis (54) of said web (2), a component (V9) that is not null.
5. Drier installation according to any one of the claims 1 to 4, wherein
25 each mixing device (12, 22, 28, 37, 46) and the corresponding suction and blowing ducts (13, 14) are arranged so that the vectors representing the respective trajectories of the different jets of sucked and/or blown combustion products are distributed in a substantially symmetrical way in relation to the plane (P2), perpendicular to said

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web (2) and stretching out according to the median longitudinal axis (54) of said web (2).

- 5 6. Drier installation according to any one of the claims 1 to 5, wherein said convective system (7, 36) includes at least one suction duct (13) that stretches out at least in the transversal direction (5) of the web (2), and at least one blowing duct (14) that stretches out at least in the transversal (5) direction of the web (2); the said suction duct (13) and the said blowing duct (14) are separated from one another
10 by a common wall (15).
7. Drier installation according to claim 6, wherein said common wall (15) is equipped with a devices (16) for advancing the thermal exchanges between the sucked combustion products and the blown
15 combustion products.
8. Drier installation according to any one of the claims 6 to 7, wherein said transversal convective system (7, 36) has a first exterior casing (17) for suction of said combustion products, said first exterior casing (17) having in a longitudinal cross-section according to the plane (P2)
20) perpendicular to said web (2) and stretching out according to the median longitudinal axis (54) of said web (2), a substantially U-shaped cross-section with opening towards the web (2) , said U-shaped casing (17) substantially stretches out in the transversal
25 direction (5) of the web (2); and inside the first external casing (17), a second internal casing (18) for blowing said combustion products, said second internal casing having a substantially U-shaped longitudinal cross-section with opening towards the web (2), and stretching out inside said first external casing (17).

- 5 9. Drier installation according to claim 8, wherein the U-shaped wall (20) of the second internal casing (18) has several first openings (21), and wherein an organ (22) to blow air under pressure is arranged substantially in the axis of each first opening (21) so as to create a venturi effect, so as to suck at least a part of the combustion products and to blow them towards the web (2).
- 10 10. Drier installation according to claim 8, wherein the U-shaped wall (20) of the second internal casing (18) has several second openings (27) stretching out in the transversal (5) direction of the web (2), and wherein a cylindrical rotor (28) with radial blades (30) rotating around an axis (31) parallel to the web (2), said axis being substantially perpendicular to the passing (6) direction of the web (2), is installed at the interior side of the first external casing (17) in front of each of the second openings (27).
- 15 11. Drier installation according to any one of the claims 9 or 10, wherein said first or second openings (21, 27) are made in the tube (20a) of the wall (20) substantially parallel to the passing web (2).
- 20 12. Drier installation according to any one of the claims 1 to 8, wherein said convective system (36) at least has one turbine (37) of which the axis (38) is substantially perpendicular to the web (2).
- 25 13. Drier installation according to claim 12, wherein each turbine (37) has a centrifugal turbine wheel (39) of which the suction opening (40) is connected to an upstream transversal suction duct (13) in relation to the web (2); the sucked combustion products are blown through two

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tangential outlet openings (41) substantially directly opposite in the transversal direction (5) of the web and connected to a transversal blowing duct (14) adjacent to the suction duct (13).

- 5 14. Drier installation according to claim 12 or 13, wherein said convective system (36) has at least two turbines (37) arranged according to a row stretching out in the transversal (5) direction of the web (2), in which each turbine cooperates with a corresponding suction (13) and blowing duct (14), stretching out transversally along a respective part
- 10 of the width of the web (2).
- 15 15. Drier installation according to claim 1 to 14, wherein said installation comprises at least two transversal convective systems (7, 36) arranged one after the other in the passing (6) direction of the web (2) and separated one from the other by at least one transversal row (4) of gas-heated radiant elements (3).